Software Design & Productivity

DoD Challenges & Expectations

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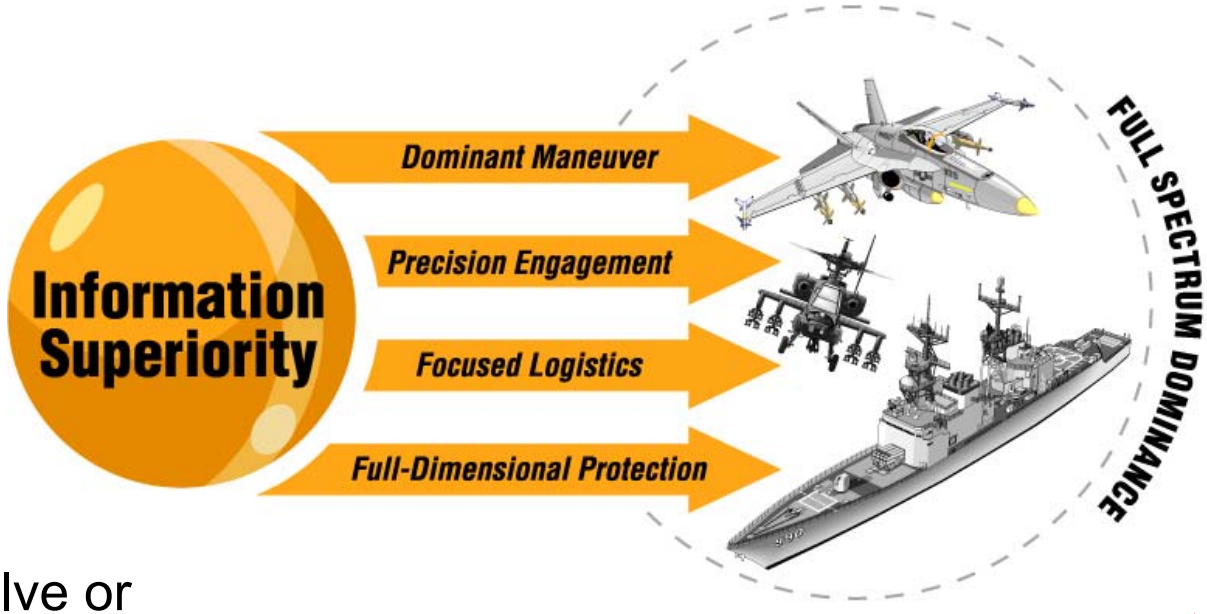
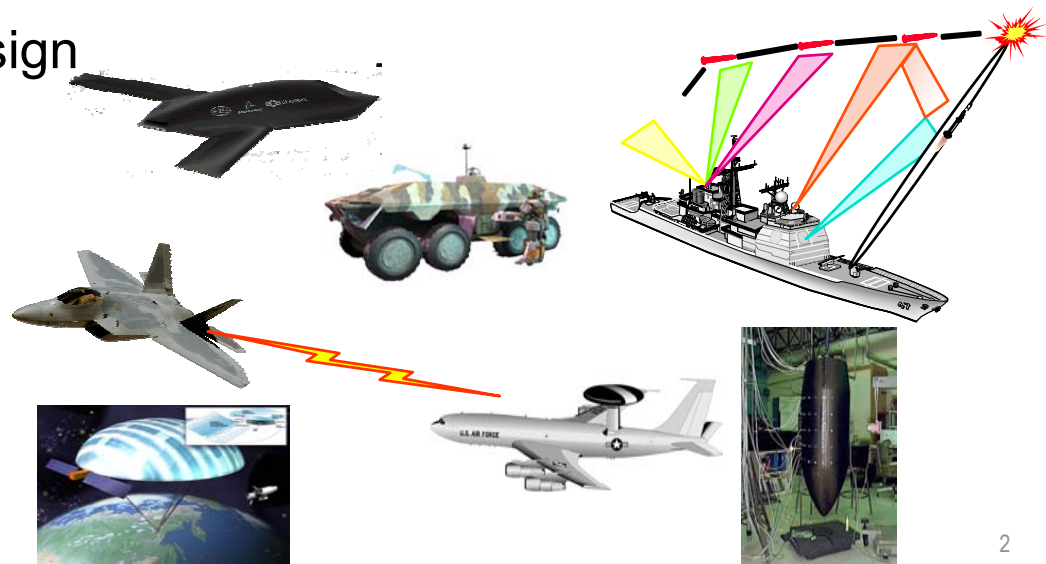
Why DoD Cares About SDP

ITO

Lessons learned by DoD
- Battles are fought with weapons…
- …but they are won with information technology



DoD strategic directions involve or depend extensively on software design quality & productivity:
- Unmanned combat air vehicles & ground vehicles
- Cruise & ballistic missile defense
- Time-critical target prosecution
- Space systems



Key SDP Challenges for DoD

Trends	Problems	Consequences
Role of computing has changed from auxiliary functions to system integration	System integration costs are sky-rocketing (over 40%)	Recurring time & cost overrun problems are "normal"
IT talent leaving the military domain	Diminishing human IT resources	Cap on complexity of DoD systems
Increasing push towards COTS	COTS isn't designed for DoD level of quality	Collateral damage & inadequate defense
Increasing reluctance to fund basic IT R&D in mission agencies	IT R&D community not well organized to defend funding	Loss of core IT R&D community for DoD & degraded capabilities

Ultimately, national security & economic prosperity depend on sustained IT R&D investments on SDP technologies for *complex* software systems

How You Can Help Us

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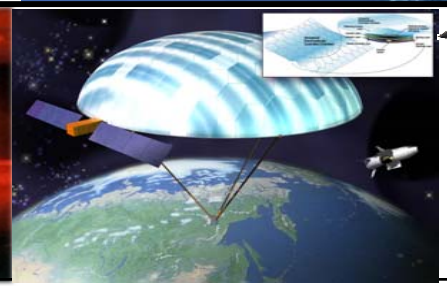
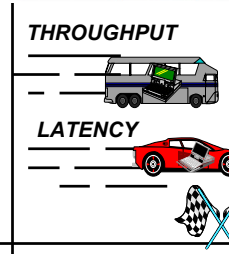
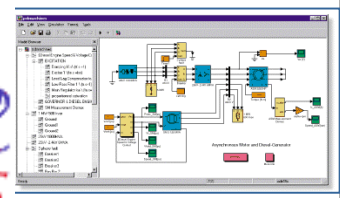
- **Describe compelling threats & emerging applications that motivate significant new IT R&D efforts, *i.e.*, what *can't* we do now?**

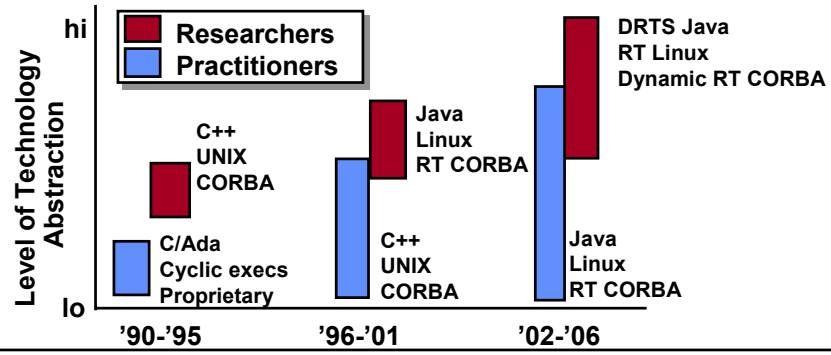


- **Articulate the promising technologies that can meet these needs**
  - *e.g.,* performance optimization techniques, languages, tools, methods, etc.





- **Explain how we can enhance & extend existing software technologies to meet future needs**
- **But focus on the radical new directions for future success**



- **Show how we can overcome the barriers between state-of-the-art & state-of-the practice in software IT**